

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated December 27, 2004. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1, 3-8, 10-15, and 17-26 are under consideration. Claims 1, 7 and 15 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

Claims 1, 3-8, 10-15 and 17-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,147,725 to Yuuki et al (hereinafter "Yuuki"), in view of JP 09-258030 by Kayoko et al. (hereinafter "Kayoko"). This rejection has been carefully considered, but is most respectfully traversed.

The liquid crystal display device of the invention (for example, the embodiment depicted Figs. 1-2), as now recited in claim 1, comprising: a liquid crystal panel PNL having a display area AR and a peripheral area (i.e., the area on PNL outsides of AR); a backlight being disposed at a rear side surface of the liquid crystal panel PNL; and a diffusing sheet SPS and a prism sheet PRS lying between the rear side surface of the liquid crystal panel PNL and the backlight, i.e., the light guide plate (Figs. 22-23). The backlight is provided by a substantially rectangular-shaped light guide plate GLB and a linear lamp LP being disposed along an incidence plane provided at one side of the light guide plate GLB. A light emission control pattern THR having a plurality of straight grooves slanted to one side of the light guide plate GLB and formed at *a corner portion* of the side of the light guide plate GLB, along which an end portion of the linear lamp LP is adjacent to (Abstract), on a back surface (e.g., Fig. 3) except for a center portion of the light guide plate GLB. The plurality of the straight grooves are overlapped with the display area AR and the peripheral area of the liquid crystal panel (e.g., Fig. 2).

The invention is also directed to a liquid crystal display device, as now recited in claim 7, comprising: a liquid crystal display panel having a display area and a peripheral area; a backlight; and a prism sheet disposed between the liquid crystal panel and the backlight. The backlight is provided by a light guide plate display panel and a linear lamp being disposed along at least one side of the light guide plate. A plurality of straight grooves are formed on a back surface of the light guide plate and formed at *a corner portion* of the side of the light guide plate GLB, along which an end portion of the linear lamp is adjacent to, except for a center portion of the light guide plate. The plurality of straight grooves are overlapped with the display area and the peripheral area.

The invention is also directed to a liquid crystal display device, as now recited in claim 15, comprising: a liquid crystal display panel having a display area and a peripheral area; a light guide plate; a prism sheet disposed between the liquid crystal display panel and the light guide plate; and a linear lamp disposed along one side of the light guide plate. The back surface of the light guide plate has a plurality of first straight grooves and a plurality of second straight grooves formed at *both corner areas* of the side of the light guide plate, along which an end portion of the linear lamp is adjacent to, except for a center portion of the light guide plate. The plurality of first straight grooves are extended in a first direction slanted to the side of the light guide plate and the plurality of second straight grooves are extended in a second direction slanted to the side of the light guide plate. The plurality of first and second straight grooves are overlapped with the display area and the peripheral area of the liquid crystal panel.

The plurality of the straight grooves are arranged to correct brightness of the corner portion to be closer to brightness of the center portion of the light guide plate (Fig. 15: “*a region 2 is a dark portion at a corner portion of a light guide plate GLB which includes a problem... and a region 5 is a region which decreases the brightness by reflection on a side surface (mirror surface) of the light guide plate GLB*” p. 36, lines 5, 11-13; correction examples, Figs. 17, 19). As such, the invention effectively prevents the corner brightness reduction caused by the narrowed picture frame (p. 6, 1st paragraph).

None of the cited references teaches or suggests such (1) “a prism sheet disposed between the liquid crystal panel and the backlight/light guide plate, and such (2) “a plurality of the grooves which (i) are formed on the corner portion(s) of the side of the light guide plate, along which an end portion of the linear lamp is adjacent to, (but absent from the center portion) of the back surface of a light guide plate, and (ii) are overlapped with the display

area and the peripheral area of the liquid crystal panel” so as to correct brightness of the corner portion to be closer to brightness of the center portion of the light guide plate as the invention.

As asserted by the Examiner, Yuuki discloses “a backlight being disposed at a rear surface side of the liquid crystal panel LCP; and equilateral prisms 50 are located between the light guide plate 11 and the reflecting sheet 12 of the backlight unit (p. 2, last 3 lines and p. 3, 1st line of the outstanding Office Action).” Yuuki’s equilateral prisms (including reflecting members 50a-50f, col. 5, lines 49-53), jointly or individually, do not shape like a sheet, as the prism sheet PRS of the invention. In addition, Yuuki’s equilateral prisms are disposed between the light guide plate 11 and the reflecting sheet 12 of the backlight unit, rather than between the liquid crystal panel PNL and the light guide plate of the backlight as in the invention (See the explanatory drawings).

One skilled in the art would not be motivated to dispose an additional prism sheet between the LC panel and light guide plate in Yuuki’s LCD to cause redundancy, because there are already equilateral prisms formed between the light guide plate 11 and the back side reflector 12 in Yuuki’s LCD.

Even if, *arguendo*, one skilled in the art were motivated to substitute Yuuki’s equilateral prisms (including reflecting members/grooves 50a-50f) with a prism sheet, as discussed, such a substitute prism sheet in Yuuki would be formed between the light guide plate 11 and the reflecting sheet 12 of the backlight unit, rather than between the liquid crystal panel LCP and the light guide plate of the backlight as does the invention. Moreover, the substitution will also remove the grooves 50a-50f of Yuuki’s equilateral prisms such that there would not be any grooves left on a back surface of the light guide plate such in Yuuki. In other words, Yuuki does not concurrently provide (1) a prism sheet between the liquid crystal panel LCP and the light guide plate 11 of the backlight and (2) grooves 50a-50f on a back surface of the light guide plate 11.

Furthermore, as Yuuki’s grooves 50a-50f are formed over the entire back surface of the light guide plate (rather than just at a corner portion adjacent to an end portion of the linear lamp), they cannot solve the weakness in brightness from the corner portion adjacent to the end portion of the linear lamp as do the grooves of the invention which are arranged to correct brightness from the corner portion so as to be closer to the brightness of the center portion of the light guide plate.

Even more, Yuuki does not describe or show the reflecting members/grooves 50a-50f formed in a peripheral area (outside of display area AR) of the liquid crystal panel. On the other hand, the invention provides grooves in the display area (except for the center portion) and the peripheral area.

As admitted by the Examiner (p. 3, lines 15-17 of the outstanding Office Action), Yuuki fails to provide “a plurality of grooves on a back surface of a light guide plate except for a center portion of the light guide plate”. Figs. 1-2 of Kayoko was relied upon by the Examiner to compensate for such a deficiency (p. 3, last line of the outstanding Office Action). Kayoko discloses a light guide body of LCD having light scattering members (14, 21). Scattering member 14 is formed on a side surface of the light guide body, the scattering member 21 is formed on a front surface (not back surface) of the light guide body. However, Kayoko’s light scattering members 14, 21 (the alleged grooves) are formed at the corners of the *front and side* surfaces of the light guide plate 11 ([0028]; [0044]-[0045]; Figs. 3-6 and 12-14), rather than the *back* surface. In addition, Kayoko’s scattering member 21 (Figs. 3-6 and 12-14) is only formed in a peripheral area (but not in the display area AR) of the front surface of the liquid crystal panel, “*so that it may not be checked by looking through opening formed in the outgoing radiation side of this frame 22 ([0045])*”. In other words, Kayoko's scattering member 21 formed on the top surface of the light guide plate 11 does NOT overlap with the display area so as to avoid blocking light in the display area. On the other hand, the invention provides grooves in the display area (except for the center portion) and the peripheral area.

In addition, these light scattering members 14, 21 are made of a white PET (polyethylene terephthalate) film, or a reflecting sheet including a white ink, on the surface of the light guide plate 11, rather than any not transparent material. As such, they are essentially different from the grooves in the transparent light guide plate GLB made of a transparent material in the invention. If Kayoko’s light scattering member 21 were formed in a LCD display, the corner brightness of LCD would get even more weaker than without such light scattering members 14, 21. Accordingly, Kayoko’s light scattering member 21 would further the problem of weak brightness from the corner portion compared to the brightness of the center portion of the light guide plate, rather than reduce the problem. It is well established that a rejection based on a cited reference having contradictory principles or principles that teach away from the invention is improper.

Applicants respectfully contend that the Examiner must provide "some concrete evidence in the record in support of" factual assertion to rely solely on "common knowledge" in the art as the principal evidence for the assertions that "it is obvious that the light guide plate from the side surface is reflected on the back surface as well (p. 7, last line to p. 8, line 4)" and that "it would have been obvious to a person of ordinary skill in the art to utilize the correction as taught by Kayoko in the LCD disclosed by Yuuki (p. 4, lines 1-3 of the outstanding Office Action)" None of the references teaches or suggests applying Kayoko's light scattering members 14, 21 on the back surface of Yuuki's light guide plate 11.

"It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. *In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d at 1697 (Fed. Cir. 2001) ("[T]he Board cannot simply reach conclusions based on its own understanding or experience-or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."). As the court held in *Zurko*, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support. *Id.* at 1385, 59 USPQ2d at 1697. See also *In re Lee*, 277 F.3d 1338, 1344-45, 61 USPQ2d 1430, 1434-35 (Fed. Cir. 2002) (In reversing the Board's decision, the court stated " 'common knowledge and common sense' on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation. The Board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies."). "As such the Examiner shall provide "some concrete evidence in the record in support of" factual assertion to rely solely on "common knowledge" in the art as the principal evidence for combining the references in the particular manner as suggested by the Examiner.

Under the current case law and MPEP 2144.03, Applicants hereby respectfully assert that the Examiner should not rely upon the knowledge of one skilled in the art without basing such reliance upon concrete evidence in the record, i.e., statements in the prior art, in support of the allegation (p. 3 lines 5-10 of the outstanding Office Action) that one skilled in the art would selectively combine Yuuki and Kayoko in the particular manner suggested by the Examiner so as to render the invention obvious. Applicants invite the Examiner to provide a prior art reference that would provide the motivation for combining the teachings in Yuuki

and Kayoko. One skilled in the art would not make such a light guide plate as claimed by the Applicants based on the above prior art teachings except by using Applicants' invention as a blueprint. Applicants will point out that a rejection based on hindsight knowledge of the invention at issue is improper. The most intuitive way to combine Yuuki and Kayoko is to have both (i) Yuuki grooves formed all over the back surface of a light guide plate and (ii) Kayoko's light diffusion members 14, 22 formed only at the corners of the front and side surfaces of the light guide plate. Such a combination is completely different from the present invention.

Although the invention applies grooves similar to disclosed in Yuuki, the invention applies the mechanism only on the corner portion (but not the center portion) of the back surface of a light guide plate, rather than all over the back surface, to achieve unexpected results or properties. For example, to prevent the corner brightness reduction caused by the narrowed picture frame. The presence of the unexpected properties is evidence of nonobviousness. MPEP§716.02(a).

"Presence of a property not possessed by the prior art is evidence of nonobviousness. In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (rejection of claims to compound structurally similar to the prior art compound was reversed because claimed compound unexpectedly possessed anti-inflammatory properties not possessed by the prior art compound); Ex parte Thumm, 132 USPQ 66 (Bd. App. 1961) (Appellant showed that the claimed range of ethylene diamine was effective for the purpose of producing " 'regenerated cellulose consisting substantially entirely of skin' " whereas the prior art warned "this compound has 'practically no effect.' ").

Although "[t]he submission of evidence that a new product possesses unexpected properties does not necessarily require a conclusion that the claimed invention is nonobvious. In re Payne, 606 F.2d 303, 203 USPQ 245 (CCPA 1979). See the discussion of latent properties and additional advantages in MPEP § 2145," the unexpected properties were unknown and non-inherent functions in view of Yuuki, since Yuuki does not inherently achieve the same results. In other words, these advantages would not flow naturally from following the teachings of Yuuki, since Yuuki fails to suggest forming the grooves only on the corner portion (but not the center portion) of the back surface of a light guide plate.

Applicants further contend that the mere fact that one of skill in the art could rearrange Yuuki's grooves to meet the terms of the claims is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for one skilled in the art to provide the unexpected properties, such as preventing the corner brightness reduction caused by the narrowed picture frame, without the benefit of appellant's specification, to make the necessary changes in the reference device. *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). MPEP§2144.04 VI C.

Even if, *arguendo*, a person of ordinary skill were motivated to combine the teachings in Yuuki and Kayoko, such combined teachings would still fall short in fully meeting the Applicants' claimed invention as set forth in claims 1, 7 and 15 since, as discussed, Kayoko's light scattering members 14, 21 are made of a white PET (polyethylene terephthalate) film, or a reflecting sheet including a white ink, on the surface of the light guide plate 11, rather than being made of any transparent material. Kayoko would further the problem of the weak brightness from the corner portion compared to the brightness of the center portion of the light guide plate, rather than reducing the problem.

Applicants contend that neither Yuuki, Kayoko, nor their combination teaches or discloses each and every feature of the present invention as recited in independent claims 1, 7 and 15. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

Conclusion

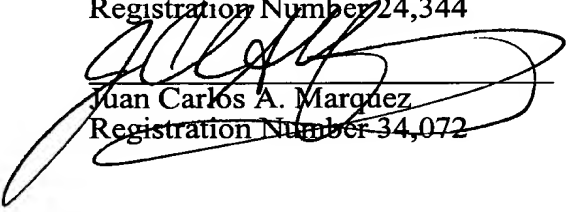
In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely. Applicant respectfully contends that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance

of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

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